

**BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA**



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Order Instituting Rulemaking to Implement the  
Commission's Procurement Incentive Framework  
and to Examine the Integration of Greenhouse  
Gas Emissions Standards into Procurement  
Policies.

Rulemaking 06-04-009  
(Filed April 13, 2006)

**COMMENTS OF SAN DIEGO GAS & ELECTRIC COMPANY (U 902 E)  
AND SOUTHERN CALIFORNIA GAS COMPANY (U 904 G)  
ON PHASE ONE ISSUES AND FINAL STAFF RECOMMENDATIONS**

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**I.  
INTRODUCTION**

In accordance with the Rules of Practice and Procedure of the California Public Utilities Commission (the "Commission") and the Assigned Commissioner's Ruling: Phase 1 Amended Scoping Memo and Request for Comments on Final Staff Recommendations (the "ACR"), issued October 5, 2006, San Diego Gas & Electric Company ("SDG&E") and Southern California Gas Company ("SoCalGas") hereby submit these comments regarding Phase 1 issues and the final staff recommendations concerning adoption of an interim greenhouse gas ("GHG") emissions performance standard ("EPS") (the "Final Staff Recommendations") .

As SDG&E and SoCalGas observed previously, the Final Staff Recommendations reflect Commission staff's responsiveness to parties' concerns regarding the design of an effective EPS.<sup>1/</sup> SDG&E fully supports the prospective focus of the "gateway" approach,

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<sup>1/</sup> Comments of SDG&E and SoCalGas on Draft Workshop Report, p. 2.

the administrative simplicity afforded by the focus on large, long-term baseload contracts, setting the proposed EPS at least at 1,100 pounds of CO<sub>2</sub> per Megawatt Hour (“MWh”) and inclusion in the interim EPS of clear methodologies for calculating the associated GHG emissions of cogeneration facilities and power from unspecified resources. Accordingly, as is discussed in greater detail below, the Commission should adopt the Final Staff Recommendations with a few minor revisions and clarifications. SDG&E and SoCalGas also address below the methodology for calculating the thermal credit used to determine the emissions associated with electricity production from combined heat and power (“CHP”) applications.

## **II. PHASE 1 POLICY ISSUES**

The ACR invites parties to comment on “any Phase 1 policy, legal or implementation issue(s) within the scope of this proceeding,” and specifically directs parties to address the Final Staff Recommendations.<sup>2/</sup> To the extent parties have previously filed comments and/or legal briefs setting forth positions on Phase 1 issues, the comments in response to the ACR are intended to constitute parties’ “final positions on those matters.”<sup>3/</sup> In accordance with this direction, SDG&E and SoCalGas address below the Final Staff Recommendations and provide comment concerning the alignment between the Final Staff Recommendations and SDG&E/SoCalGas’ final positions regarding the structure and implementation of the Phase 1 interim GHG EPS.

### **1) Design Goals for the EPS**

- a) Prevent backsliding and commitments that will make future GHG reductions more difficult**
- b) Minimize costs to ratepayers and minimize the risk of long-term commitments that will raise the cost of future compliance costs**

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<sup>2/</sup> ACR, p. 3.

<sup>3/</sup> *Id.*, p. 6.

- c) **Reliability:**
  - i) **short-term: do not force shutdown of essential facilities**
  - ii) **long-term: consider risks of relying on high emitting resources**
- d) **Administrative simplicity, regulatory certainty, consistency with statutory guidelines and requirements**

**SDG&E/SoCalGas Comment:** These design goals fairly represent the consensus of the workshop participants and are generally consistent with SDG&E/SoCalGas’ recommendation regarding design criteria, as stated in their Post-Workshop Comments, filed July 27, 2006, p. 5. This Final Staff Recommendation omits a key design goal, however, and should be modified to include “signaling generation development away from high-emitting resources” as an additional design goal. In light of the existence of the loading order, RPS requirements, and the GHG adder, which currently guide IOU procurement, conveying a clear message to generation developers and non-IOU LSEs regarding the type of electric generation acceptable to California is a primary justification for development of an interim EPS. (*See*, SDG&E/SoCalGas Post-Workshop Comments, p. 5).

## 2) **Timeframe**

- a) **Implement program on or before February 1, 2007 in consultation with the California Energy Commission and State Air Resources Board and compliant with Section 8341(d).**
- b) **Coordinate with procurement proceeding, but adopt prior to February 1, 2007 per Section 8341(d).**
- c) **Implement performance standard as interim measure for an unspecified period of time. CPUC, through a rulemaking proceeding and in consultation with the Energy Commission and State Air Resources Board, shall reevaluate and continue, modify, or replace the greenhouse gases EPS when an enforceable green house gases emissions limit is established and in operation, that is applicable to load serving entities. (Section 8341(g))**

**SDG&E/SoCalGas Comment:** This Final Staff Recommendation is consistent with SDG&E and SoCalGas’ position, as expressed in their Comments on the Draft Workshop Report, filed September 8, 2006, pp. 8-9, that SB 1368 requires the Commission to

reevaluate the EPS when an enforceable greenhouse gases emission limit is established and in operation. The Commission should make clear that while the interim EPS will not be eliminated prior to establishment and operation of an enforceable GHG emission limit, *discussion and evaluation* of the ongoing need for the interim EPS can and should occur during Phase 2, in advance of the actual implementation of the enforceable GHG limit contemplated in Phase 2. (*See*, SDG&E/SoCalGas Comments on the Draft Workshop Report, p. 9).

**3) To Which LSEs does the EPS apply?**

- a) Apply to all jurisdictional LSEs (including ESPs and CCAs). (Section 8340(h), 8341(a))**
- b) Create ESP process to address ESP procurement related to this program (Section 8341(a)(2)and(3))**
- c) Don't delay pending program development for publicly-owned utilities**
- d) Develop a filing/approval process for multi-jurisdictional utilities (MJUs) compliant with Section 8341(d)(9).**

**SDG&E/SoCalGas Comment:** This Final Staff Recommendation is consistent with SDG&E and SoCalGas' position, as expressed in their Pre-Workshop Comments, filed June 12, 2006 and their Opening Brief filed June 30, 2006. It addition, it is clear that under SB 1368, the interim EPS applies to ESPs and CCAs. (*See*, ACR, Attachment 1, § 3).

**4) Program Screens**

- a) The EPS standard will be applied on a "gateway" basis, at the time a LSE's commitment (build or buy) is proposed. (Section 8341(a))**
- b) The standard will be applied to the reasonably projected emission rate (lbs of CO<sub>2</sub> per MWh) from the supply source over the term of the commitment. (Section 8341 broadly).**
- c) "Covered resources" are resources with a reasonably projected average annual capacity factor of 60% or greater. (Section 8340(a))**

**SDG&E/SoCalGas Comment:** This Final Staff Recommendations is consistent with SDG&E and SoCalGas' position, as expressed in their Post-Workshop Comments, filed

July 27, 2006, supporting the gateway approach (p. 6) and supporting application of the interim EPS to generation resources with a capacity factor of 60% or greater (p. 9).

**5) Covered Power Sources**

- a) Applied to all LSE commitments (Section 8341), including:**
  - i) utility owned new generation,**
  - ii) repowered facilities**
  - iii) new and renewal contracts for power, including cogeneration facilities**
  - iv) For the purposes of ensuring that existing contracts and investments are not required to be renegotiated, all facilities that meet the requirements of Section 8341(d)(1) should be deemed in compliance at the onset of the EPS program. As contract renewals and/or repowering of those facilities occur, they should be subject to the gateway standard.**

**SDG&E/SoCalGas Comment:** The Final Staff Recommendation is consistent with the SDG&E/SoCalGas position, as expressed in their Post-Workshop Comments, filed July 27, 2006, p. 7, supporting the application of the GHG EPS to new generation, repowering, and new and renewed long-term contracts for baseload power.

With respect to application of the interim EPS to repowered facilities, SDG&E and SoCalGas recommend that the Commission provide a formal definition of repowering in order to eliminate ambiguity regarding application of the interim EPS. In addition, SDG&E and SoCalGas recommended that the Commission make clear that replacement of equipment and/or the addition of pollution control equipment should not trigger application of the EPS. Rather, only changes that alter the nameplate capacity of the plant (*i.e.*, the plant's maximum rated output under specific conditions designated by the manufacturer and usually indicated on a nameplate physically attached to the generator) should trigger the EPS review. (*See*, SDG&E/SoCalGas Reply Comments on the Draft Workshop Report, filed September 15, 2006, p. 5)

SDG&E and SoCalGas also request that the Commission rectify an inconsistency between SB 1368 and Final Staff Recommendation 5(a)(iv). SB 1368 provides that “[a]ll

combined-cycle natural gas powerplants that are in operation, or that have an Energy Commission final permit decision to operate as of June 30, 2007, shall be deemed to be in compliance with the greenhouse gases emissions performance standard.”<sup>4/</sup> Thus, these plants are, by definition, compliant with the interim EPS and should not be required to reestablish compliance upon contract renewal. As a practical matter, because SB 1368 requires that the EPS be set at a level that ensures compliance of these plants, if such plants *are* required to reaffirm compliance upon contract renewal, the showing will be merely pro forma. Thus, logic does not support the proposal in Final Staff Recommendation 5(a)(iv) that as contract renewals of those facilities occur, they should be subject to the gateway standard. This requirement would merely impose administrative burden while serving little purpose.

**5b) All new and renewal contracts and commitments in “covered resources” of five years or longer (Section 8340(j))**

**SDG&E/SoCalGas Comment:** This Final Staff Recommendation is consistent with SDG&E and SoCalGas’ position, as expressed in their Post-Workshop Comments, filed July 27, 2006, pp. 7-8, recommending that only those contracts with a duration of five years or longer should be subject to the GHG EPS. This position is also consistent with SB 1368. (*See*, ACR, Attachment 1, § 4).

**5c) Applied to baseload and intermediate or “shaping” facilities with reasonably anticipated annual average capacity factor of 60% or greater (Section 8340(a))**

**SDG&E/SoCalGas Comment:** This Final Staff Recommendation is consistent with SDG&E and SoCalGas’ position, as expressed in their Post-Workshop Comments, filed July 27, 2006, p. 9, supporting application of the interim GHG EPS to facilities with a

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<sup>4/</sup> Senate Bill (SB) 1368, Sec. 2, § 8341(d)(1), (Stats. 2006, Ch. 598).



60% or greater capacity factor. The Final Staff Recommendation is also consistent with SB 1368 (*See*, ACR, Attachment 1, § 4).

Because SB 1368 refers only to a 60% capacity factor and does not discuss or define “intermediate” or “shaping” facilities, SDG&E and SoCalGas recommend that the Commission eliminate these terms and refrain from using them in the EPS. (*See*, ACR, Attachment 1, § 4). The key analysis under SB 1368 is whether the annual average capacity factor of a facility meets the 60% threshold, regardless of additional terms that may be used to describe the facility. Inclusion of these additional terms in the interim EPS could, however, cause confusion and result in misapplication of the EPS.

**5d) Size threshold (Section 8341 broadly):**

- i) For specified facilities (built or under contract): 25 MW or greater commitment (e.g. contract size) delivered to the grid;**
- ii) For unspecified resource/facilities under contract: 25 MW or greater delivered to the grid under contract commitment.**
- iii) For either specified or unspecified commitments: a series of related contracts with the same supplier, likely resource, or known facility, or a series of related or similar contracts with separate sources must be considered as a single commitment in size, capacity factor, and duration. Multiple contracts with the same supplier, likely resource, or known facility are considered to be a single commitment, and must be reviewed as such. Such multiple contract activities must be disclosed by the utilities to the CPUC in order to eliminate “slicing and dicing” of large contracts intended to avoid or manipulate the gateway screening process. Utilities that do not disclose such activities will be considered in violation of the performance and subject to penalty and enforcement.**

**We recognize that some professional judgment is required to determine when certain contractual commitments are “related” or “similar” so as to trigger review as a single commitment. However this is a common enough problem in environmental regulation and utility prior review programs, and we expect a professional rule of reasonableness to govern its application here. LSEs that are in doubt as to the application of the Rule to new long-term commitments can disclose their contracting patterns to the Commission and seek a jurisdictional determination under the Rule.**

**SDG&E/SoCalGas Comment:** The Final Staff Recommendation is consistent with the SDG&E/SoCalGas position as expressed in their Post-Workshop Comments, filed July 27, 2006, supporting evaluation of EPS applicability on the basis of contract(s) rather than underlying plant operation (p. 8) and supporting the size exemption (p. 11).

**5e) Application to Qualifying Facilities (QFs) to be determined based upon CPUC review of legal briefs and in accordance with PURPA.**

**SDG&E/SoCalGas Comment:** The Final Staff Recommendation is consistent with SDG&E and SoCalGas' position, as expressed in their Pre-Workshop Comments, filed June 12, 2006, p. 15 and Opening Brief, filed June 30, 2006, pp. 5-7. In their Opening Brief, SDG&E and SoCalGas argued that so long as short-term contracts are excluded from the interim EPS, there exists no rationale for exclusion of QFs from the obligation to comply with the EPS:

The concern regarding QF contracts arises from the fact that the utilities are currently required under PURPA to enter into QF contracts. Thus, the risk exists in theory that the utilities would be unfairly penalized if QF production facilities delivering power to the utilities under mandatory contracts were unable to meet the EPS. As a practical matter, however, it is unlikely that this scenario would occur. As discussed below, to the extent that short-term contracts (*i.e.*, contracts with a term of less than 5 years) between a utility and a QF would be excluded from application of the EPS, a categorical exemption is not required for long-term QF contracts. Issues related to QF contracts are currently being addressed in R.04-04-025. As SDG&E has explained in that proceeding, it is well-settled that PURPA does not require long-term standard offers or minimum contract terms. Rather, the utility may elect to meet PURPA requirements solely through short-term contracts. Indeed, the Commission has concluded that "[t]aking a look at the statute, we find no mandated minimum term for PURPA required purchases. Looking to FERC regulations, we similarly find no mandated minimum term." The Commission has further observed that in implementing PURPA, many states do not require standard offers (either short-term or long-term) and instead require QFs to negotiate agreements with utilities under market conditions.

In light of the fact that SDG&E is not required under PURPA to enter into long-term agreements with QFs, SDG&E has recommended in R.04-04-025 that all QFs (new, existing and those with expiring contracts) be permitted to participate in SDG&E's request for offers ("RFO") process and/or enter into mutually beneficial bi-lateral contracts. To the extent a QF elects not to participate or does not succeed in the SDG&E RFO process, SDG&E would make available a one-year term agreement for capacity and energy in order to satisfy PURPA requirements.

In the absence of a mandatory requirement to enter into long-term contracts with QFs, applying the EPS to QF contracts raises few concerns. If the QF contract is short-term, the EPS would not apply, according to the Commission's current Straw Proposal. If a QF opts to bid into an SDG&E RFO or to initiate bi-lateral negotiations, evaluation of the QF's offer on the basis of, among other things, compliance with the EPS would be appropriate. As SDG&E and SoCalGas have noted previously, the Commission should cast as wide a net as possible in the event it elects to impose an interim EPS. Provided that short-term contracts are excluded from the EPS, there exists no rationale for exclusion of QFs from the obligation to comply with the EPS, if one is ultimately adopted. (pp. 5-7, internal footnotes omitted)

**5f) Facilities used for self-generation are covered if they meet the criteria for the gateway screen. Credit against emission rates for co-generation thermal loads will be permitted using the calculation proposed by EPUC/CAC and reviewed on a case-by-case basis upon a showing of the percentage of facility's useful thermal load.**

**SDG&E/SoCalGas Comment:** The Final Staff Recommendation is consistent with SDG&E/SoCalGas' position, as expressed in their Comments on the Draft Workshop Report, filed September 8, 2006, pp. 5-6, that the interim EPS should define the methodology to be used to determine the credit provided for co-generation thermal load. While the Final Staff Recommendation provides this definition, the method selected for calculation of the thermal credit is the CAC/EPUC method rather than the SDG&E/SoCalGas preferred method. In accordance with the ACR, SDG&E and SoCalGas provide further analysis of this issue in section III below.

**5g) Renewables compliant with the RPS are covered resources subject to the gateway screen and should estimate their emissions in a manner compliant with Section 8341(d)(4). In the case of renewable contracts with firming resources, see below.**

**SDG&E/SoCalGas Comment:** In their Post-Workshop Comments, filed July 27, 2006, p. 14, SDG&E and SoCalGas express support for the analysis performed by the Green Power Institute that would set all renewable emissions at zero. This approach would be consistent with the treatment of biogenic emissions by the California Climate Action Registry (“CCAR”) and under the Kyoto Protocol. The Final Staff Recommendation provides that for facilities generating electricity from biomass, biogas, or landfill gas energy, the Commission shall consider net emissions from the process of growing, processing and generating the electricity from the fuel source. The Final Staff Recommendation fails, however, to proceed to the next step of the analysis and to make a determination that biogenic renewables will pass the GHG EPS. Accordingly, the Commission should adopt the Final Staff Recommendation and should, in addition, find that biogenic renewables have net emissions of zero.

**5h) Reliability and cost exemptions may be permitted, and will be considered on a case-by-case basis. The Commission will consult with the Independent System Operator to consider the effects of the standard on system reliability and overall costs to electricity customers. (Section 1(g), Section 8341(d)(6).**

**SDG&E/SoCalGas Comment:** The Final Staff Recommendation is consistent with the SDG&E/SoCalGas position in favor of including in the interim EPS the flexibility necessary to respond to unforeseen circumstances related to reliability and/or price. *See*, SDG&E/SoCalGas Post-Workshop Comments, filed July 27, 2006, pp. 15-16; Comments on Draft Workshop Report Comments, filed September 8, 2006, pp. 8-9.

**6) What is the Standard and How Determined?**

- a) Emissions standards based upon CCGT performance of a powerplant that is designed and intended to provide electricity generation at an annualized plant capacity factor of at least 60 percent. (Section 8340(a)).**
  - i) One standard for all covered facilities based upon typical combined cycle natural gas facilities operating in the WECC system. The standard limit is 1100 lbs CO<sub>2</sub>/MWh.**
- b) Potential R&D exemption on a case-by-case basis for higher emitting facilities. One example might be an advanced coal facility that has an equal or better emission rate than the estimated IGCC average heat rate and emissions, and that has or will have in a reasonable period of time the capacity and existing plan to capture and store carbon dioxide as described in the GHG Performance Standard Policy Statement. In addition, carbon dioxide that is injected in geological formations, so as to prevent releases into the atmosphere, in compliance with applicable laws and regulations shall not be counted as emissions of the powerplant in determining compliance with the EPS. (Section 8341(d)(5)).**

**SDG&E/SoCalGas Comment:** This Final Staff Recommendation is consistent with the SDG&E/SoCalGas position, as expressed in their Post-Workshop Comments, filed July 27, 2006, pp. 12-13, supporting an EPS standard limit of 1,100 lbs. CO<sub>2</sub>/MWh. In their Comments on the Draft Workshop Report, filed September 8, 2006, pp. 3-5, SDG&E and SoCalGas also recommended the 1,100 lbs. CO<sub>2</sub>/MWh limit, and noted that setting the EPS at this level would ensure satisfaction of SB 1368's mandate that "[a]ll combined-cycle natural gas powerplants that are in operation, or that have an Energy Commission final permit decision to operate as of June 30, 2007, shall be deemed to be in compliance with the greenhouse gas emission performance standard." (pp. 3-4, internal footnote omitted).

The Final Staff Recommendation is also consistent with SDG&E/SoCalGas' position favoring a research and development ("R&D") exemption, to be applied on a case-by-case basis. SDG&E and SoCalGas express support for including in the interim

EPS the flexibility necessary to advance new technologies in their Pre-Workshop Comments, dated June 12, 2006, p. 7, as well as their Post-Workshop Comments, filed July 27, 2006, p. 16.

- 7) Application of the standard to units and contracts (Section 8341 broadly)**
- a) Single-unit-specific contracts: contracted unit must qualify**
  - b) Multi-unit contracts: each covered unit must qualify**
  - c) Baseload renewable product with a firming fossil unit(s) that qualifies as a “covered resource”: baseload blended average of all covered facilities (renewable and fossil) must pass screen. If firming unit is unspecified impute appropriate emissions factor.**
  - d) Null renewable power treated same as unspecified power. RPS compliant power treated as renewable.**
  - e) Unspecified resource contracts: apply most current CEC “Net System Power” average at time of new or renewed commitment. This is the statewide system average of the leftover energy in the system that is not claimed- includes in and out of state power, and anything that is not claimed by a CA utility, and is the most representative option reflecting CA LSE procurement activities. All LSEs would use the same average emissions factor, regardless of location in the state.**
  - f) For either specified or unspecified commitments: as discussed above in 5)d.iii., a series of related contracts with the same supplier, likely resource, or known facility, or a series of related or similar contracts with separate sources must be considered as a single commitment in size, capacity factor, and duration. Multiple contracts with the same supplier, likely resource, or known facility are considered to be one bulk contract, and must be reviewed as such. Such multiple contract activities must be disclosed by the utilities to the CPUC in order to eliminate “slicing and dicing” of large contracts intended to avoid or manipulate the gateway screening process. Utilities that do not disclose such activities will be considered in violation of the performance and subject to penalty and enforcement.**

**SDG&E/SoCalGas Comment:** This Final Staff Recommendation is consistent with the SDG&E/SoCalGas position, as expressed in their Post-Workshop Comments, filed July 27, 2006, pp. 14-15, supporting the methodology proposed by the CEC in its recent report, *Proposed Methodology to Estimate the Generation Resource Mix of California Electricity Imports*, CEC-700-2006-007, issued in May, 2006. In their Comments on the

Draft Workshop Report, filed September 8, 2006, pp. 6-8, SDG&E/SoCalGas also argued for the revised method:

[T]he Draft Workshop Report recommends that the Commission “consider” the CEC’s refined methodology proposed in its recent report, *Proposed Methodology to Estimate the Generation Resource Mix of California Electricity Imports*, CEC-700-2006-007, May, 2006. **SDG&E and SoCalGas support the new, refined methodology for calculation of the “Net System Power” proposed by the CEC in its May, 2006 report and recommend the Commission adopt the new methodology and the resulting assigned GHG emissions.** (p. 7, emphasis added)

The Final Staff Recommendation appears to adopt the position advocated by SDG&E and SoCalGas that, for purposes of the interim EPS, the emission values associated with the composition of “Net System Power” in the CEC’s May, 2006, report should form the basis for the GHG emissions value for system power.

In their Opening Brief, filed June 30, 2006, pp. 7-8, SDG&E and SoCalGas point out that adopting separate emission values for system power from different regions (*e.g.*, in-state, Northwest, Southwest) could potentially violate the Interstate Commerce Clause:

The Commerce Clause of the U.S. Constitution extends to Congress the power “[t]o regulate Commerce with foreign Nations and among the several States, and with the Indian Tribes.” The U.S. Supreme Court has held that while incidental burdens on interstate commerce caused by state law may be permissible under certain circumstances, “where simple economic protectionism is effected by state legislation, a virtually *per se* rule of invalidity has been erected.” Thus, in adopting regulations that would assign emission characteristics on the basis of geographic origin for use with unspecified resource contracts, the Commission must be mindful of the need to ensure that the burden placed upon interstate commerce by such regulations is not “a protectionist measure, [but rather] a law directed to legitimate local concerns, with effects upon interstate commerce that are only incidental.” (p. 8, internal footnotes omitted)

SDG&E and SoCalGas submit that the approach recommended by SDG&E and SoCalGas, and in Final Staff Recommendation No. 7, avoids the potential violation of the

Commerce Clause described above, to the extent that all system power, whether in-state or from out of state is assigned the same value at the same point in time.

**8) Monitoring and Enforcement (Section 8341 broadly)**

**a) CPUC gateway review with documentation and approval required prior to finalizing contract or commitment to construct**

**SDG&E/SoCalGas Comment:** The Final Staff Recommendation is consistent with the SDG&E/SoCalGas position, as expressed in their Post-Workshop Comments, filed July 27, 2006, pp. 5-6, in support of CPUC gateway review, which would require Commission approval prior to finalization of any long-term IOU financial commitment.

**9) Offsets, Safety Valves, and other flexibility devices**

**a) No offsets or market price safety valves**

**b) Case-by-case exemption for reliability and costs considered upon application and CPUC review.**

**SDG&E/SoCalGas Comment:** This Final Staff Recommendation is consistent with SDG&E and SoCalGas' recommendation that the interim EPS include an exemption for reliability and cost, to be applied on a case-by-case basis, as discussed in their Post-Workshop Comments, filed July 27, 2006, pp. 15-16. In their Comments on the Draft Workshop Report, filed September 8, 2006, pp. 8-9, SDG&E and SoCalGas proposed that the EPS also include a price safety valve in order to protect utility customers and to ensure consistency with SB 1368, pointing out that SB 1368 requires that "[i]n adopting and implementing the greenhouse gases emission standard, the commission, in consultation with the Independent System Operator shall consider the effects of the standard on system reliability and *overall costs* to electricity customers." SDG&E and SoCalGas therefore support the Final Staff Recommendation, which includes exemptions for both reliability and costs, to be applied on a case-by-case basis.



### **III. EMISSIONS CREDITS FOR COMBINED HEAT AND POWER**

As indicated in Attachment 2 of the ACR, a variety of methods have been used to provide emissions credits for combined heat and power (“CHP”) facilities in state air quality regulations for conventional pollutants. For purposes of the interim Phase 1 GHG EPS, SDG&E/SoCalGas have proposed a relatively simple method that provides credit to the electrical generator for the estimated emissions avoided on the thermal side. Under this “emissions avoided” approach, calculating the compliance of an individual CHP unit with the GHG EPS requires merely deducting the emissions that a conventional boiler system would otherwise emit, had it provided the same useful thermal output from the total GHG output of the plant. For simplicity, SDG&E/SoCalGas had proposed using a standard 80% efficient boiler in all calculations, except where a lower gas boiler efficiency could be demonstrated. However, as pointed out in Attachment 2 to the ACR, locally-permitted emission rates of gas boilers could be utilized in the alternative.

In Attachment 2 to the ACR, the Commission solicits discussion of the specific method recommended and the reasoning supporting adoption of the proposed methodology. Specifically, it requests information on the manner in which the avoided emissions would be estimated for a replacement system, a new system, and for the case in which the avoided thermal system emissions cannot be determined.

All parties agree that emissions related to the thermal load of a cogeneration unit should be deducted for CHP applications in evaluation of the GHG emissions for purposes of the EPS gateway. The thermal load is the second most important factor in determining the efficiency of a CHP unit besides the heat rate of the electric generation

unit. Under the SDG&E/SoCalGas proposal, this analysis would be performed on a case-by-case basis since each cogeneration unit has a different heat rate and thermal load.

The boiler offset, thermal CO<sub>2</sub> avoided emissions, would be calculated based on the emissions of a boiler needed to produce the same amount of useful thermal energy as the CHP unit. The expected CO<sub>2</sub> per kWh for the cogeneration unit passing through the GHG EPS gateway would be adjusted by deducting a boiler credit for the CO<sub>2</sub> emissions avoided by the use of the effective use of thermal energy. The boiler credit would be calculated by multiplying the Btus of useful thermal load per MWh by a gas CO<sub>2</sub> emissions factor and dividing by the boiler efficiency. Dividing by the boiler efficiency produces an output-based measure, as required by SB 1368, since it measures the emissions associated with creating an identical stream of useful thermal energy.

SDG&E/SoCalGas would keep the calculation simple by using a standard gas boiler efficiency of 80% for all cases, unless it could be demonstrated that the actual efficiency was lower. In California, nearly all stand-alone thermal applications use natural gas as the fuel for combustion to create necessary process heat. Eighty percent is the minimum efficiency of these type large gas boilers in California, according to data available from the California Energy Commission.<sup>5/</sup>

Alternatively, the emissions rate could be the minimum state or local standards for efficiency of new gas boilers, when and if such standards are adopted in the future for purposes of measuring GHG emissions.<sup>6/</sup> Since gas combustion is assumed to be the

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<sup>5/</sup> CEC efficiency data is available online at [www.energy.ca.gov/appliances/appliance/excel\\_based\\_files/boilers/](http://www.energy.ca.gov/appliances/appliance/excel_based_files/boilers/).

<sup>6/</sup> Because California does not currently regulate GHG emissions, explicit efficiency standards do not exist at this time. Control of criteria pollutants imposes implicit efficiency requirements, but current requirements are expressed in terms of limits on the amount of pollutants rather than efficiency.

source of heat in the absence of the CHP unit, the GHG emissions avoided by the use of CHP generated heat can always be estimated once the amount of useful thermal energy and the megawatt hours are known by assuming a level of boiler efficiency.

The calculation is demonstrated in the example below:

#### CHP Calculation

Assumptions:

Electric Generation = 1 MWh

Pounds of CO<sub>2</sub> per MMBtu Consumed = 117

Boiler Efficiency = 80%

Total Btu Consumed per MWh= 11.719 MMBtu/MWh

Total Useful Thermal Energy per MWh = 5.115 MMBtu/MWh

Calculation:

Emission Rate = GHG Emissions/MWh of Electricity – Boiler Credit for GHG/MWh

Boiler Credit (lbs/MWh) =

[(MMBtus of useful heat/Mwh of power) x (boiler lbs/MMBtu)]/ (boiler efficiency)

Emission Rate =

(117 lbs./MMBtu x 11.719 MMBtu)/1 MWh minus (117 x 5.115 MMBtu/.80)

$$= 1,371 - 748 = 623 \text{ lbs. CO}_2/\text{MWh}$$

The calculation demonstrates that the CHP unit would not pass the EPS at the proposed level of 1,100 pounds CO<sub>2</sub> since 1,371 is larger than 1,100 pounds/MWh without consideration of the avoided thermal emissions. Once the emissions avoided due to the CHP use of the thermal energy, the CHP unit would pass the GHG gateway with a calculated emissions level of 623 pounds CO<sub>2</sub> per MWh.

The below excerpt from the Rhode Island air quality regulations demonstrates that the SDG&E/SoCalGas preferred approach is implementable and is, in fact, substantively identical to as the Rhode Island regulations used for CO<sub>2</sub> limitation regulations:

A CHP system that meets these requirements can receive a compliance credit against its actual emissions based on the emissions that would have been created by a conventional separate system used to generate the same thermal output. The credit will be subtracted from the actual generator emissions for purposes of calculating compliance with the emission standards in section 43.4.2. The credit will be calculated according to the following assumptions and procedures:

The emission rates for the displaced thermal system (e.g., boiler) will be:

For CHP installed in new facilities, the emissions limits applicable to new natural gas-fired boilers in 40 CFR 60, Subparts Da, Db, Dc, as applicable, in lb/MMBtu. [Emphasis added]

For CHP facilities that replace existing thermal systems for which historic emission rates can be documented, the historic emission rates in lbs/MMBtu but not more than:

Emissions	Maximum Rate
Nitrogen oxides	0.3 lbs/MMBtu
carbon monoxide	0.08 lb/MMBtu
carbon dioxide	117 lb/MMBtu

The emissions rate of the thermal system in lbs/MMBtu will be converted to an output-based rate by dividing by the thermal system efficiency. For new systems the efficiency of the avoided thermal system will be assumed to be 80% for boilers or the design efficiency of other process heat systems. If the design efficiency of the other process heat system cannot be documented, an efficiency of 80% will be assumed. For retrofit systems, the historic efficiency of the displaced thermal system can be used if that efficiency can be documented and if the displaced thermal system is either enforceably shut down and replaced by the CHP system,

or if its operation is measurably and enforceably reduced by the operation of the CHP system.<sup>7/</sup>

The SDG&E/SoCalGas preferred approach provides the closest approximation to the actual emissions associated with the thermal energy. It produces a value that is in between the CAC/EPUC method and a conversion method using the heat rate of the CHP unit as proposed in Attachment 2 to the ACR.<sup>8/</sup>

#### CAC/EPUC method

$$5.115 \text{ MMBtu}/(3.412 \text{ MMBtu/MWh}) = 1.5 \text{ MWh}$$

$$\text{Emissions Rate} = 1,371 \text{ lbs.}/(1 \text{ MWh} + 1.5 \text{ MWh}) = 1,371/2.5 \text{ MWh} = 548 \text{ lbs./MWh}$$

#### Heat Rate Method

$$5.115 \text{ MMBtu}/11.719 \text{ MMBtu/MWh} = 0.44 \text{ MWh}$$

$$\text{Emissions Rate} = 1,371 \text{ lbs.}/(1 \text{ MWh} + 0.44 \text{ MWh}) = 1,371/1.44 \text{ MWh} = 952 \text{ lbs./MWh}$$

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<sup>7/</sup> State of Rhode Island and Providence Plantations, Dept. of Environmental Management, Office of Air Resources Air Pollution Control Regulation No. 43, General Permits for Smaller Scale Electric Generation Facilities (emphasis added).

<sup>8/</sup> The CAC/EPUC method is based on California Air Resources Board calculations for CHP distributed generation units with a minimum efficiency of 60 % in the conversion of the energy from the fossil fuel to electricity and process heat.

#### **IV. CONCLUSION**

For the reasons set forth above, and in SDG&E and SoCalGas' prior filings incorporated herein by reference, the Commission should adopt the Final Staff Recommendations with the minor revisions and clarifications described above.

Respectfully submitted this 18<sup>th</sup> day of October, 2006.

/s/Aimee M. Smith

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## **CERTIFICATE OF SERVICE**

I hereby certify that a copy of **COMMENTS OF SAN DIEGO GAS & ELECTRIC COMPANY (U 902 E) AND SOUTHERN CALIFORNIA GAS COMPANY (U 904 G) ON PHASE ONE ISSUES AND FINAL STAFF RECOMMENDATIONS** has been electronically mailed to each party of record on the service list in R.06-04-0009. Any party on the service list who has not provided an electronic mail address was served by placing copies in properly addressed and sealed envelopes and depositing such envelopes in the United States Mail with first-class postage prepaid.

Copies were also sent via Federal Express to the Commissioner Michael R. Peevey and the Assigned Administrative Law Judges Charlotte TerKeurst, Jonathan Lakritz, and Meg Gottstein.

Executed this 18<sup>th</sup> day of October, 2006 at San Diego, California.

/s/ Jodi Ostrander

Jodi Ostrander

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